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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,419	06/02/2005	Yuanguang Li	186707/US	3175
52835 7590 10/26/2007 HAMRE, SCHUMANN, MUELLER & LARSON, P.C. P.O. BOX 2902 MINNEAPOLIS, MN 55402-0902				
			EXAMINER AFREMOVA, VERA	
			ART UNIT 1657	PAPER NUMBER
			MAIL DATE 10/26/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/537,419

Applicant(s)

LI ET AL.

Examiner

Vera Afremova

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/20/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2 and 5-11 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,5,6 and 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Election/Restrictions***

Applicant's election with traverse of the Group I in the reply filed on 8/20/2007 is acknowledged. The traversal is on the ground(s) that there is no serious burden in searching and examining all groups of claims. This is not found persuasive because different groups of claims are drawn to a product and a method having different scope as claimed and, thus, the references that would be applied to one group of claims would not necessarily anticipate or render obvious the other group(s). Moreover, as to the question of burden of search, classification of subject matter is also an indication of the burdensome nature of the search involved. The literature search, particularly relevant in this art, is not co-extensive and is much more important in evaluating the burden of search. Burden in examining materially different groups having materially different issues also exists. Clearly different searches and issues are involved with each group. For these reasons, the restriction requirement is deemed proper and is adhered to. The restriction requirement is hereby made FINAL.

Claims 7 and 8 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected group of invention. Applicant timely traversed the restriction requirement in the reply filed on 8/20/2007.

Claims 2, 5, 6 and 9-11 as amended (8/20/2007) are under examination in the instant office action.

***Specification***

The disclosure is objected to because of the following informalities:

The instant specification lacks the current address of the depository collection CGMCC. Appropriate correction is required.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims as written, do not sufficiently distinguish over microbial cells and/or over environmental samples comprising the cells. In the absence of the hand of man, the naturally occurring products are considered non-statutory subject matter. See *Diamond v. Chakrabarty*, 447 U.S. 393, 206 USPQ 193 (1980). The claims should be amended to indicate the hand of inventor. e.g., by insertion of "isolated strain" as encompassed by protocol of obtaining the strain of the instant invention as disclosed in the specification on page 2 or on page 10. See MPEP 2105.

***Claim Rejections - 35 USC § 112***

***Deposit***

Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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At least some of the claims require one of ordinary skill in the art to have access to a specific microorganism *Paenibacillus polymyxa* HY96-2 (CGMCC No. 0829). Because the microorganism is essential to the claimed invention, it must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public. If the microorganism is not so obtainable or available, the requirements of 35 U.S.C. 112 may be satisfied by deposit of the microorganism. The specification does not disclose a repeatable process to obtain the microorganism and it is not clear from the specification or record that the microorganism is readily available to the public.

The objection and accompanying rejection may be overcome by establishing that each microorganism identified is readily available to the public and will continue to be so for a period of 30 years or 5 years after the last request or for the effective life of the patent, whichever is longer, or by an acceptable deposit as set forth herein. See 37 CFR 1.801-1.809.

If the deposit is made under the terms of the Budapest Treaty, then an affidavit or declaration by applicants or a statement by an attorney of record over his/her signature and registration number, stating that the deposit has been made under the Budapest Treaty and that all restrictions imposed by the depositor on availability to the public of the deposited material will be irrevocably removed upon issuance of the patent would satisfy the deposit requirement. See 37 CFR 1.808.

Because CGMCC has acquired the status of an International Depository in accordance to the Budapest Treaty, a declaration stating that all restrictions will be irrevocably removed upon issuance of the patent will overcome this rejection.

***Indefinite***

Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is rendered indefinite by the phrase “further” or “formulation further contains” because this phrase extends rather than limits the claimed subject matter. It is suggested to write, for example: “contains a carrier” and to present depending claim(s) drawn to the choice of the carrier(s).

Claim 5 recites “a carrier” in the formulation of the claim 2 that appears to contain some or same “carriers”. There is insufficient antecedent basis for this limitation in the claim.

With respect to claims 6 and 11 it is uncertain whether the claimed formulation contains 3-16% of water in the whole formulation or whether 3-16% of water are “further” added to some unidentified amount of water in the aqueous solution of the “culture broth of said strain” (see claim 2).

With respect to claim 10 it is uncertain what “cell growth” is intended. Is it plant cell growth?

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 10 are rejected under 35 U.S.C. 102(e) as anticipated by US 6,602,500 (Kharbanda et al) or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,602,500 (Kharbanda et al).

Claims are directed to a composition comprising cells of bacteria belonging to *Paenibacillus polymyxa* strain HY96-2 (CGMCC No. 0829) and a carrier. Some claims are further drawn to the intended effect of the composition in promoting plant growth.

US 6,602,500 (Kharbanda et al) discloses a composition comprising cells of bacteria belonging to *Paenibacillus polymyxa* strain ATCC 202127 that is capable to produce antifungal compound and that is used for controlling fungal diseases of plants, thus, capable of promoting plant growth and yields (entire document including abstract).

The referenced microorganism *Paenibacillus polymyxa* strain ATCC 202127 appears to be identical to the presently claimed strain *Paenibacillus polymyxa* strain HY96-2 (CGMCC No. 0829) and is considered to anticipate the claimed microorganism since it belongs to the same bacterial species and is capable of promoting plant growth and yields. Consequently, the claimed strain appears to be anticipated by the cited reference. Moreover, applicants disclose that all culture and physiological characteristics of the claimed strain are shared with the representative(s) of *Paenibacillus polymyxa* (specification page 12, lines 8-10).

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In the alternative, even if the claimed microorganism is not identical to the referenced strain with regard to some unidentified characteristics, the differences between that which is disclosed and that which is claimed are considered to be so slight that the referenced microorganism and its formulation(s) are likely inherently possess the same characteristics of the claimed microorganism and its formulation(s) particularly in view of the similar characteristics which they have been shown to share (such as assignment to the same species and capability of promoting plant growth). Thus, the claimed strain and/or composition(s) with this strain would have been obvious to those of ordinary skill in the art within the meaning of USC 103. Therefore, the claimed invention as a whole was clearly prima facie obvious, especially in the absence of evidence to the contrary.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 5, 6 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,602,500 (Kharbanda et al) taken with US 6,599,503.

Claims are directed to a composition comprising cells of bacteria belonging to *Paenibacillus polymyxa* strain HY96-2 (CGMCC No. 0829) and a carrier. Some claims are further drawn to the intended effect of the composition in promoting plant growth. Some claims



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are further drawn to incorporation of the carrier(s) such as clay, talc, diatomaceous earth, etc.

Some claims are further drawn to incorporation of 3-16 % of water.

US 6,602,500 (Kharbanda et al) discloses a composition comprising cells of bacteria belonging to *Paenibacillus polymyxa* strain ATCC 202127 that is capable to produce antifungal compound and that is used for controlling fungal diseases of plants, thus, capable of promoting plant growth and yields (entire document including abstract). The formulation with strain comprises carrier including liquid culture medium (col.14, lines 62-65) and agricultural carriers to facilitate applications as intended for promoting plant growth (col. 10, lines 20-25). The cited patent is lacking particular disclosure about some particular carriers.

However, US 6,599,503 discloses bacterial formulations intended for promoting plant growth that are suspended in water or aqueous solutions and comprise carriers such as clay, talc, diatomaceous earth, etc. (entire document including col. 7, lines 20-30).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to modify the formulations with cells of *Paenibacillus polymyxa* disclosed by US 6,602,500 (Kharbanda et al) by incorporation of various carriers with a reasonable expectation of success in promoting plant growth and plant yields because representatives of *Paenibacillus polymyxa* are capable of promoting plant growth and because various carriers including the claimed carriers have been known and used in formulations intended for promoting plant growth. Thus, the claimed invention as a whole was clearly *prima facie* obvious, especially in the absence of evidence to the contrary.

The claimed subject matter fails to patentably distinguish over the state art as represented by the cited references. Therefore, the claims are properly rejected under 35 USC § 103.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vera Afremova whose telephone number is (571) 272-0914. The examiner can normally be reached from Monday to Friday from 9.30 am to 6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon P. Weber, can be reached at (571) 272-0925.

The fax phone number for the TC 1600 where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 1600, telephone number is (571) 272-1600.

Vera Afremova

AU 1657

October 22, 2007



VERA AFREMOVA

PRIMARY EXAMINER